

IDS - 09/29/2005

SEP 29 2005

JC06 Rec'd PCT/PTO 29 SEP 2005

PTO/SB/21 (09-04)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**TRANSMITTAL  
FORM**

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

27

Application Number

10/531,039

Filing Date

April 12, 2005

First Named Inventor

Joseph P. KENNEDY, Jr.

Art Unit

Unassigned

Examiner Name

Unassigned

Attorney Docket Number

GRA26 007

**ENCLOSURES**

(Check all that apply)

☐

Fee Transmittal Form

☐

Fee Attached

☐

Amendment/Reply

☐

After Final

☐

Affidavits/declaration(s)

☐

Extension of Time Request

☐

Express Abandonment Request

☒

Information Disclosure Statement

20 Cited References, count as 1 page each

☐

Certified Copy of Priority Document(s)

☐Reply to Missing Parts/  
Incomplete Application☐Reply to Missing Parts  
under 37 CFR 1.52 or 1.53☐

Drawing(s)

☐

Licensing-related Papers

☐

Petition

☐Petition to Convert to a  
Provisional Application☐

Power of Attorney, Revocation

☐

Change of Correspondence Address

☐

Terminal Disclaimer

☐

Request for Refund

☐

CD, Number of CD(s) \_\_\_\_\_

☐ Landscape Table on CD☐

After Allowance Communication to TC

☐Appeal Communication to Board  
of Appeals and Interferences☐Appeal Communication to TC  
(Appeal Notice, Brief, Reply Brief)☐

Proprietary Information

☐

Status Letter

☐Other Enclosure(s) (please identify  
below):**Remarks**

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 04-1679. A duplicate copy of this sheet is enclosed.

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm Name

DUANE MORRIS LLP

Signature



Printed name

Mark C. Comtois

Date

September 29, 2005

Reg. No.

46,285

**CERTIFICATE OF TRANSMISSION/MAILING**

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature

/John Lee/

Typed or printed name

/John Lee/

Date

01/07/2007

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

BEST AVAILABLE COPY



ATTORNEY DOCKET NO.: GRA26 007

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the Patent Application of Joseph P. Kennedy, et al.

Serial No.: 10/531,039

Art Unit: Unassigned

Filed: April 12, 2005

Examiner: Unassigned

Title: SYSTEM AND METHOD FOR ESTIMATING THE MULTI-PATH DELAYS IN A  
SIGNAL USING A SPATIAL BLIND ANTENNA ARRAY

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

The below listed documents are identified for consideration in the examination of the  
subject application.

**U.S. PATENTS AND PATENT APPLICATION PUBLICATIONS:**

<u>Pat./Pub. No.</u>	<u>Patentee(s)</u>	<u>Issue/Pub. Date</u>	<u>Examiner Initials</u>
6,922,170	Alexander, Jr.	July 26, 2005	JL
6,845,240	Carlson, et al.	January 18, 2005	JL
6,839,539	Durrant, et al.	January 4, 2005	JL
6,834,234	Scherzinger, et. al.	December 21, 2004	JL
6,782,264	Anderson, et al.	August 24, 2004	JL
6,553,322	Ignagni	April 22, 2003	JL
6,501,955	Durrant, et al.	December 31, 2002	JL
6,477,161	Hudson, et al.	November 5, 2002	JL

6,470,195	Meyer	October 22, 2002	JL
6,334,059	Stilp, et al.	December 25, 2001	JL
6,311,043	Haardt, et al.	October 30, 2001	JL
6,295,455	Fischer, et al.	September 25, 2001	JL
6,212,319	Saleh, et al.	April 3, 2001	JL
6,188,351	Bloebaum	February 13, 2001	JL
6,144,711	Raleigh, et al.	November 7, 2000	JL
5,870,029	Otto, et al.	February 9, 1999	JL
5,506,863	Meidan	April 9, 1996	JL
5,465,289	Kennedy, Jr., et al.	November 7, 1995	JL
5,317,323	Kennedy, Jr., et al.	May 31, 1994	JL
4,783,744	Yueh	November 8, 1988	JL
US20040043775	Kennedy, Jr., et al.	March 4, 2004	JL
US20020094821	Kennedy, Jr.	July 18, 2002	JL
US20030190919	Niemenmaa	October 9, 2003	JL

The below listed documents are enclosed for consideration in the examination of the subject application.

**FOREIGN PATENTS AND PUBLICATIONS:**

<u>Patent No.</u>	<u>Patentee(s)</u>	<u>Issue Date</u>	<u>Examiner Initials</u>
JP60-347529	NEC Corp.	December 22, 1994	JL

**Relevance of Foreign Language Documents**

**1. JP60-347529**

An English translation of the listed document has been provided.

**OTHER PUBLICATIONS:**

Leshem, et al., "Array Calibration in the Presence of Multipath," IEEE Transactions of Signal Processing, Vol. 48, No. 1, pp.53-59, January 1, 2000. JL

Ziskind, I., Wax, M., "Maximum likelihood localization of multiple sources by alternating projection", IEEE Trans. Acoust., Speech, Signal Process. vol. 36, no. 2 (Oct. 1988), 1553-1560; JL

Van Der Veen, M, Papadias, C.B., Paulraj, A.J., "Joint angle and delay estimation" IEEE Communications Letters vol. 1-1 (Jan. 1997), 12-14; JL

Schmidt, R.O. "Multiple emitter location and signal parameter estimation" Proc. RADCSpectrum Estimation Workshop, (Mar. 1999), 243-258; JL

Young-Fang Chen, Michael D. Zoltowski "Joint Angle and Delay estimation of DS-CDMA communication systems with Application to Reduced Dimension Space-time 2D Rake Receivers", IEEE Transactions on Signal Processing; JL

Paulraj, A.J., Papadias, C.B., "Space-Time Signal Processing for Wireless Communications", IEEE Signal Processing Magazine, vol. 11 (Nov. 1997), 49-83; JL

Paulraj, A.J., Papadias, C.B., "Space-Time Signal Processing for Wireless Communications: A Survey" Information System Laboratory, Stanford University; JL

Haardt, Brunner and Nossek "Joint Estimation of 2-D Arrival Angles, Propagation Delays, and Doppler Frequencies in Wireless Communications, Proc. IEEE Digital Signal Processing Workshop, volume 1, pages 1-4, Bryce Canyon National Park, Utah, Aug 1998. JL

M. Wax, "Position location from sensors with position uncertainty", IEEE Trans. Aero., Elect. Syst. AES-19, no. 2 (Sept. 1983), 658-662; JL

D.J. Torrieri. "Statistical Theory of Passive Location Systems", IEEE Trans. Aerosp. Electron. Syst. AES-20, no. 2 (Mar. 1984), 183-198; JL

Y.T. Chan and K.C. Ho, "A simple and efficient estimator for hyperbolic location", IEEE Trans. Signal Proc. 42, no. 8 (Aug. 1994), 1905-1915; JL

W.H. Foy. "Position location solutions by Taylor series estimation", IEEE trans Aerosp. Electron. System AES-12, no. 2 (Mar. 1976), 187-194; JL

R.G. Stansfield, "Statistical theory of DF fixing", Journ. IEE 94, part IIIa (Oct. 1947), 762-770 JL

M.P. Wylie and J. Houtzman, "The non-line of sight problem in mobile location estimation". Proc. IEEE 5th International Conf. on Universal Personal Communications, vol. 2 (Oct. 1996), 827-831; JL

L.Cong and W.Xuang, "Non-Line-of-Sight Error Mitigation in TDOA mobile location" Proc. IEEE Global Telecommunications conference vol.1 (2001), 680-684; JL

P.C. Chen, "A non-line-of-sight error mitigation algorithm in location estimating" Proc. IEEE Conf. on wireless Communications Networking, vol. 1 (1999), 316-320; JL

N.J. Thomas, D.G.M. Cruickshank and D.I. Laurenson, "Performance of a TDOA-AOA hybrid mobile location system" 3G Mobile Communication Technologies Conf. Proc. 1 (Mar. 2001), 216-220 JL

Caffery, J., Jr., et al., "Subscriber Location in CDMA Cellular Networks," IEEE Transactions on Vehicular Technology, Vol. 47, No. 2, May 1998. JL

Caffery, J., Jr., "A New Approach to the Geometry of TOA Location," IEEE, VTC 2000, pp. 1943-1949. JL

Respectfully Submitted,

By: 

L. Lawton Rogers, III

Reg. No. 24,302

Mark C. Comtois

Reg. No. 46,285

Patrick D. McPherson

Reg. No. 46,255

D. Joseph English

Reg. No. 42,514

Duane Morris LLP  
1667 K Street, N.W., Suite 700  
Washington, D.C. 20006  
Telephone: (202) 776-7800  
Telecopier: (202) 776-7801

Dated: September 28, 2005

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☒ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**